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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/810,023

03/26/2004

Zhaofu Hu

8416

25859

7590

06/24/2005

WEI TE CHUNG

FOXCONN INTERNATIONAL, INC.

1650 MEMOREX DRIVE

SANTA CLARA, CA 95050

EXAMINER

CANNING, ANTHONY J

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 06/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/810,023

Applicant(s)

HU ET AL.

Examiner

Anthony J. Canning

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
4a) Of the above claim(s) 6-17 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-5, 18 and 19 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☒ Claim(s) 6-17 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/26/04.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-5, 18 and 19, drawn to a barrier array for a flat panel display, classified in class 313, subclass 292.
 - II. Claims 6-17, drawn to a method for manufacturing a barrier array for a flat panel display, classified in class 445, subclass 24.
2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and material different process such as forming the insulative layer on the shadow mask via E-beam evaporation.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Joseph Chung on 13 June 2005 a provisional election was made with traverse to prosecute the invention of barrier array for a flat panel display, claims 1-5, 18 and 19. Affirmation of this election must be made by applicant in replying to this Office action. Claims 6-17 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

6. The drawings are objected to under 37 CFR 1.83(a) because they fail to show item 21 in figure 4 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be

renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

7. Claim 2 is objected to because of the following informalities: Invar is a trademarked material; the composition of the desired material should be instead disclosed, such as an iron-nickel alloy. Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-5, 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al. (U.S. 5,534,743).

10. Regarding claim 1, Jones et al. disclose a barrier array for use in a flat panel display including: a shadow mask (see Fig. 7, item 28; column 6, lines 14-15) defining a plurality of

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openings (see Fig. 7, the region above item 36 where there is a gap in layer 28; lines 1-7 in the abstract) therethrough according to a predetermined pattern (lines 2-4 in the abstract say that the figure is formed via differential etching, which the examiner interprets as a predetermined pattern), the predetermined pattern being in accordance with a pixel pattern of a flat panel display; and an insulative layer formed thereon (see Fig. 7, item 30; column 6, lines 15-16). Jones et al. also discloses a spacer (see Fig. 9, item 90), which can be formed between pixels (column 11, lines 25-31), which would render them on top of the metal mask layer (see Fig. 7, item 28).

11. Regarding claim 2, Jones et al. disclose the barrier array as described in claim 1, wherein the shadow mask is made from a material selected from the group: invar, low carbon steel, or another suitable metal alloy. Item 28 of figure 7 corresponds to item 66 of figure 8. In column 10, line 17, it is disclosed that the perforated metal layer (items 28 and 66) is an electrode. Jones et al. disclose, in lines 23-27 of column 10 that any suitable material may be used in the layers and components of the flat panel display. In Table 1 (column 7), step 4 of the manufacturing process is of a conductor using the alloy of Cr-Cu-Cr, which is an appropriate metal for the perforated metal layer. The coefficient of thermal expansion of Cr-Cu-Cr¹ is close to that of glass², which is used as the substrate in the flat panel display of Jones et al..

12. Regarding claim 3, Jones et al. disclose the barrier array as described in claim 1, wherein the insulative layer comprises alumina or magnesia (column 6, lines 15-16). Jones et al. specify alumina. Jones et al. also specify that the spacers are made from layers of aluminum oxide, which is alumina.

¹ 9.91PPM/K, according to Williams Advanced Materials company

13. Regarding claim 4, Jones et al. disclose the barrier array as described in claim 3, wherein a thickness of the insulative layer is in the range from 10 to 500 micrometers. Specifically, Jones et al. state the each layer that forms the spacer is around 50 microns in thickness (column 11, lines 45-46). Therefore, one of the aluminum oxide (alumina) layers is on the perforated metal mask with a thickness that falls in the range of 10 to 500 micrometers.

14. Regarding claim 5, Jones et al. disclose the barrier array as described in claim 3, wherein a thickness of the insulative layer is in the range from 75 to 200 micrometers. Jones et al. state that the layers of the spacer do not have to be different materials, which means they could all be made from aluminum oxide (alumina). Jones et al. states the thickness of the layers can be varied to a desired spacing dimension between the respective emitter and anode plate members (column 11, lines 38-44). The examiner interprets this to mean that a range from 75 to 200 micrometers is covered by the recitation of varying thickness of the spacers by Jones. et al..

15. Regarding claim 18, Jones et al. disclose a barrier array for use in a flat panel display including: a metal plate (see Fig. 7, item 28; column 6, lines 14-15) defining a plurality of openings (see Fig. 7, the region above item 36 where there is a gap in layer 28; lines 1-7 in the abstract) therethrough according to a pixel pattern of a flat panel display; and an insulative layer formed thereon (see Fig. 7, item 30; column 6, lines 15-16).

16. Regarding claim 19, Jones et al. disclose the barrier array as described in claim 18, wherein the openings are radially surrounded by the insulative layer (Abstract: lines 1-4; the

² 9.93PPM/K, SiO₂-Na₂O (23% mol Na₂O) glass, Material Science and Engineering Handbook

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multilayer stacks circumscribe³ the field emitters, which the examiner interprets to be synonymous with radially surround).

Prior Art

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Haven et al. (U.S. 5,543,683) teach a barrier array for a flat panel display where a shadow mask is employed to allow the passage of light to the viewer.

Spindt et al. (U.S. 6,107,731) teach a flat panel display wherein a barrier array is configured so that insulative spacers are formed on metal electrodes.

Contact Information

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

³ To draw a line around; encircle.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Canning *ac*

15 June 2005

Ashok Patel
ASHOK PATEL
PRIMARY EXAMINER
~~ASHOK PATEL~~
~~PRIMARY EXAMINER~~